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Inventor(s):
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 Filed: and Other Materials : Examiner: Marcantoni, Paul D.
 Title: Treated Bauxite Tailings
 for Making Same :
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THE LISTING OF ALL CLAIMS EVER PRESENTED (37 CFR 1.121(c))

Claim 1 (amended).

Claim 2 (amended) A process for treating bauxite tailings to substantially neutralize a predetermined proportion of sodium hydroxide present therein, comprising:

pulverizing said bauxite tailings into a generally homogenous powder;
 agitating said powder while adding sufficient water to form a generally free-flowing slurry;

adding sufficient sulfuric acid to the slurry to neutralize said sodium hydroxide to a pH of about 5.5 to 6 to form water and an aqueous solution of sodium sulfate; and
 separating said aqueous sodium sulfate solution from remaining insoluble slurry;
 washing said slurry, while permitting a catalytically effective amount of sodium sulfate to remain with said insoluble slurry.

- (C) (w) The process of claim 29 wherein said homogenous powder is sufficiently finely pass through a 16 mesh screen.
- (C) (w) The process of claim 29 wherein said insoluble slurry from the treated bauxite is further treated to form a component of building material.
- (C) (w) The process of claim 31 wherein said building material is cementitious.
- (C) (w) A product obtainable by the process of claim 29.
- (C) (w) A process for treating bauxite tailings to substantially neutralize a proportion of sodium hydroxide present therein, comprising:
- pulverizing said bauxite tailings into a generally homogenous powder which homogenous powder is sufficiently fine to generally pass through a 16 mesh screen;
- agitating said powder while adding sufficient water to form a generally free slurry;
- agitating said slurry while adding sufficient sulfuric acid to the slurry to neutralize sodium hydroxide to a pH of about 5.5 to 6 to form water and an aqueous solution containing sodium sulfate formed by said neutralization; and
- separating said aqueous sodium sulfate solution from remaining insoluble slurry leaving catalytically effective amounts of residual sodium sulfate without washing said insoluble slurry.
- (C) (w) The process of claim 34 wherein said insoluble slurry is further treated to form a component of a building material.
- (C) (w) The process of claim 35 wherein said building material is cementitious.

7 (New) The process of claim 36 wherein said residual sodium sulfate remaining in soluble slurry catalyzes subsequent formation of carbonaceous crystals in said cementitious

8. (New) A product obtainable by the process of claim 34.

9. (New) A process for forming a cementitious material containing treated bauxite comprising:

pulverizing said bauxite tailings into a generally homogenous powder
said homogenous powder is sufficiently fine to generally pass through a 16 mesh

agitating said powder while adding sufficient water to form a generally
slurry;


agitating said slurry while adding sufficient sulfuric acid to the slurry to
neutralize sodium hydroxide present in the slurry to a pH of about 5.5 to 6 to form water and an
aqueous solution containing sodium sulfate formed by said neutralization;

separating said aqueous sodium sulfate solution from remaining insoluble
material containing catalytically effective amounts of residual sodium sulfate without washing said
insoluble slurry; and

combining said insoluble slurry in an amount of from about 5 to 50
parts by volume with a cementitious substance to form said cementitious material.

10. (New) The process of claim 39 wherein said cementitious substance is cement.

- Claim 41. (New) The process of claim 39 wherein said insoluble slurry is combined with said cementitious substance, compacted and cured to form a brick.
- Claim 42. (New) The process of claim 41 wherein said brick is cured in a super saturated humidity environment for a predetermined time period.
- Claim 43. (New) The process of claim 42 wherein said time period is at least 168 hours.
- Claim 44. (New) A product obtainable by the process of claim 39.


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